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ABSTRACT

Previous research shows that school desegregation has had both positive and negative effects on students, and that desegregation effects have been variously determined by the type of desegregation, the desegregation methods used, and the region in which desegregation was implemented. A study of the effects of court-ordered desegregation on minority students in the Austin, Texas, Independent School District compared student achievement gains as a function of ethnic group (white, black, or Hispanic) and reassignment status (reassigned or nonreassigned) of urban school children in grades two through eight. Results indicated that in five out of seven grade levels, reassigned minority students made smaller gains in both reading and mathematics than their nonreassigned peers. In contrast, reassigned white students gained more than their nonreassigned peers in five out of seven levels in mathematics and in four out of seven levels in reading. The findings suggest that the proportion of minority students in a class and the issues of white flight and culture shock may influence differential achievement gains among students. It is further suggested that massive busing of either white or minority students may not be the most efficient way to enhance minority student achievement. (Author/MJL)

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# The Effect of Court-Ordered Desegregation on Minority Students' Achievement: There's No Place Like Home

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Paper presented to the American Educational Research Association in New York City, March, 1982.

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## The Effect of Court-Ordered Desegregation on Minority Students' Achievement: There's No Place Like Home

Regardless of the positive, negative, or neutral effects of desegregation on student outcome variables, it is likely that desegregation of public schools will be an ongoing process for many years. This permanence in the process is the result of the nature of desegregation litigation--it is not an educational or social issue primarily, but a constitutional one concerning the civil rights of the children involved (Swanson, 1979).

Nevertheless, certain social and educational benefits were expected as a result of desegregation. These predicted benefits were: (a) less racial prejudice, or more positive attitudes towards persons of other races, (b) higher self-esteem for minority children, (c) increased achievement for minority children (Stephan, 1978). If desegregation is here to stay, it is time to stop asking whether to continue it or not, and instead document the extent to which expected benefits are occurring, and then determine ways to maximize or facilitate these benefits in the future.

Unfortunately, it is not always easy to document the extent to which these expected benefits occur. Various reviews have atttempted to summarize the effects of desegregation on minority students. (Bradley & Bradley, 1977; Cook, 1979; Crain & Mahard, 1978; St. John, 1975; Stephan, 1978; Weinberg, 1977). A total of 96 studies were reviewed by the above authors (24 published and 72 unpublished manuscripts and dissertations). A number of studies were cited by more than one re-

viewer and are therefore counted only once among the totals to be discussed here. A wide variety of design problems are encountered in the studies reviewed, and some studies are clearly more methodologically sound than others. However, ignoring for the moment these problems and simply totaling the number of separate studies (as done by Crain & Mahard, 1978) seems to provide a good estimate of the percentage of positive gains shown for desegregation. Forty-seven of the 96 studies cited showed positive achievement gains as a function of desegregation, while 36 showed mixed or no gains, and only 13 showed clearly negative gains.

Weinberg (1975) states that: "The primary focus of school desegregation research to date has been on cognitive skills (e.g., reading and mathematics) of nonwhites. The greatest number of such studies report positive gains as a result of desegregation, although it is clear that much additional research is needed before the findings can be fully understood and translated into effective policy."

However, Coleman (1975) reports that: "The achievement benefits of integrated schools appeared substantial when I studied them in the middle 1960's. But subsequent studies of achievement in the actual systems that have desegregation, some with a more rigorous methodology than we were able to use in 1966, have found smaller effects, and in some cases none at all."

This lack of consensus seems to indicate that desegregation sometimes helps minority achievement and at other times does not. This is unlikely to be a random event. There are probably reasons why desegregation is sometimes effective and other times ineffective. Thus, the next step is to discern when and why it's effective--to try to determine

the reasons.

According to St. John (1975), there are some things we know or strongly suspect: (a) White achievement has been unaffected in schools that remain majority white, but declines in schools that are majority black; (b) Desegregation has not rapidly closed the achievement gap between minority students and white students; (c) Improvements in minority achievement are more likely in math than in reading; (d) Biracial schooling may have negative effects on the self-concept of black students by lowering their educational and vocational aspirations, etc.; (e) Effects on attitudes and prejudice are sometimes positive and sometimes negative.

St. John (1975) also postulated that higher levels of anxiety and identity confusion could result for minority students who were reassigned to schools where the percentage of blacks was low unless there was: (a) a lack of tokenism, (b) a slow influx of minorities, (c) an interracial staff, and (d) a multigroup culture. As St. John (1975) has further pointed out, any positive results of desegregation may well be hidden until at least two or three years time has elapsed. It is interesting to note that about half of the published studies cited above utilized longitudinal designs of two years or more, while about half had one-year or same-year designs.

## Factors Influencing Effective Desegregation

### Naturally Occurring Desegregation

It is interesting to note that the majority of studies on desegregation compare achievement of students in segregated and desegregated environments. This type of study seems to be somewhat narrow; the appropriate research questions should really be concerned with the ef-

fects of various types of desegregation, because desegregation is a process that is likely to continue.

One type of desegregation to be considered is the naturally occurring, racially mixed school. Most studies of this "natural" type of desegregation have examined the achievement of black students in predominantly white schools, compared with black students in all-black schools (Crain & Mahard, 1978). The confounding effects of socioeconomic status make these studies hard to interpret. In addition, Black students in integrated neighborhoods may also be systematically different in ways other than socioeconomic status. Finally, the positive effects for naturally occurring desegregation are found more consistently in studies done in the North than in studies done in the South. (The direction of these regional differences is reversed for cases of mandatory desegregation). Nevertheless, in the case of naturally-occurring desegregation, black students in predominantly white schools generally have higher achievement than black students in all black schools.

Mandatory Versus Voluntary Desegregation

Another way to categorize types of desegregation is to distinguish between voluntary and mandatory desegregation plans. Voluntary plans are usually those in which minority parents are asked if they will transfer their child to a predominatly white school. Surprisingly, achievement gains for blacks appear more likely in mandatory plans than in voluntary ones. This is somewhat counterintuitive, but consider that minority parents whose children are doing poorly may be more likely to volunteer for transfer than parents of children already doing quite well. Thus, the children who are initially doing poorly may be the

least able to adapt to a desegregated situation.

In addition, receiving schools may be under relatively little pressure in voluntary plans to accept or help incoming students to adapt. Finally, in a voluntary plan, a larger proportion of classmates may be left behind than in a mandatory plan, where at least one half or occassionally all classmates at a grade level would be reassigned. The disruption of social relationships may actually be greater in voluntary desegregation plans.

Specific Methods of Desegregation

Two major strategies have been used in mandatory desegregation plans: (a) "pairing" of two or more schools, and (b) redrawing of boundary lines. Pairing usually means that all first, second, and third graders in both attendance areas combine to attend one school, while all fourth, fifth, and sixth graders from both attendance areas attend the other school. Redrawing of boundary lines involves shifting a discrete area or neighborhood from one school attendance area to another, school, frequently a nearby school with a slightly different racial balance.

The effects of "pairing" or similar types of reassignment plans on the students involved have been mixed. They generally indicate that black students who remain in their neighborhood schools make greater achievement gains than students who are bused to formerly all-white schools (Howell, 1981; Mason, 1980. A very early study, by Straly (1956) of high school seniors reported higher achievement test scores for non-transported students than for transported students. Other studies have also reported lower achievement gains for bused students (Hsia, 1971; Davies, 1969; Dunlap, Harper, & Hunka, 1958). However,

there are also studies which report no differences between bused and non-bused studes (Sheehan, 1978; White, 1970). An explanation of the contradictory findings seemed needed.

In a more recent study, Frelich and Anderson (1981) investigated achievement trends in black students undergoing voluntary desegregation in an urban school district. That study reported achievement gains for black students that were higher than expected if the receiving school had an enrollment that was at least 50 percent minority. At schools with lower than 50 percent minority enrollment, achievement gains for black students were smaller than expected.

A study by Mason (1980) supports this interpretation. She reported that black students exposed to a 77 percent white population scored lower than black students exposed to a 12 percent white population. It was hypothesized that two factors may have accounted for the results: (a) teachers that were ill-equipped to deal with black students, and (b) culture shock for black students finding themselves as a small minority.

The Frelich and Anderson study was of a voluntary desegregation plan. However, most "pairing" or other mandatory desegregation plans create schools that are either 50 percent white, or reflect the population of the entire district (55 percent was the target percentage in Austin Independent School District schools, with 35-65 percent white students actually occurring at most schools.)

Grade Level of Desegregation

Crain and Mahard (1978) reviewed 73 studies and concluded that the earlier the grade at which desegregation occurred, the more positive the impact on achievement.

## Effect Of Region

Positive effects of desegregation are generally more consistent in the South: two-thirds of the Southern studies show positive outcomes, while only 35 percent of the Northern studies showed positive outcomes (Crain & Mahard, 1978). The exception, again, was for black students attending predominantly white schools under mandatory desegregation plans, compared with black students attending all black schools.

### Method

The Austin Independent School District used both pairing and redrawing of boundary lines to implement its desegregation plan. In addition, a few schools were not affected at all because they were naturally desegregated. Thus, there were several distinct groups of children: (a) Nonreassigned children in an unaffected school, (b) Nonreassigned children in a paired school, (c) Nonreassigned children in a school affected by a boundary line change, (d) Reassigned children in a paired school, (e) Reassigned children in a school affected by a boundary line change. There were no reassigned children in unaffected schools, of course.

The present study compared gains as a function of ethnic group and reassignment status for only a one-year period. However, it may be crucial to assess gains and losses as a function of reassignment that do occur soon after reassignment, in order to reliably interpret subsequent two-year or longer longitudinal data. Nonsignificant results obtained for short periods of time would, of course, be a little use. But significant differential gains shown by one or another ethnic group would be useful. Immediate remedial action could potentially be implemented before serious problems arise at the community level concerning

the usefulness of reassignment for minorities and the possible deleterious effects on non-minority students.

Data Source. The entire population of elementary and junior high school students from grades two through eight who were tested on the Iowa Test of Basic Skills (ITBS) in an urban district with 55,000 student were considered for the primary subject pool in the analysis. Students from grade one were eliminated since their first and only ITBS testing occurred in 1981, and hence no baseline data were available. From the remaining students, those who had a valid score on either the Reading or Math measure across both 1979-80 and 1980-81 were utilized in the final analyses. Approximately 99 percent of the eligible subjects had complete longitudinal data for two years on both measures.

The Iowa Tests of Basic Skills were administered to all K-8 students for both the spring of 1980 and 1981. Classroom teachers administered the tests, although a standardized prerecorded tape was played over the public address system in each school. Teachers were provided a script of these instructions, in the event the tape was not audible for some reason. In addition, time was provided on the tape for teachers to answer students' questions concerning the instructions.

Analysis. Raw scores within grades were on different levels of the test (due to some out-of-level testing), making it difficult to use raw scores in the analyses. Statistical analyses using percentile scores also seemed inappropriate. After obtaining additional information from the ITBS publisher, it appeared that grade equivalents were a "scaled score" that would be appropriate for our grades 2-8 population. Interpretation of grade equivalents below the second grade or in the extremes of each distribution does still present problems. However, it

seemed the most appropriate choice for this study. Therefore, grade equivalent scores were chosen as the unit of analysis. The dependent measures were the 1981 Reading Total and Math Total grade equivalent scores. The analogous 1980 scores were utilized as covariates for each of the two depedent measures, respectively, and hence served as baseline measures.

The two independent variables were reassignment status (reassigned, not reassigned) and ethnic group (Black, Hispanic, and White/Other). Analyses were done separately for each of the seven grade levels (two through eight) since achievement trends might be expected to differ at each grade level.

Analyses were conceptually performed in two stages. Initial analyses tested for the equality of slopes for each group on the regression of the dependent measure on the covariate. Given a nonsignificant difference between slopes, or a less than one percent variance accounted for by this interaction variance, an analysis of covariance was performed. Hence the final analyses were concerned with the scores of two posttest achievement measures as a function of both ethnicity, reassignment status, and pretest levels.

## Results

Because the unequal covariate slopes were either non-significant or accounted for less than one-half of one percent of the variance in 1981 scores at any grade level, analyses of covariance were used for all subsequent analyses. Figures 1 through 8 show the 1981 reading and math mean grade equivalent scores, after adjusting for pretest differences between the groups. Results are shown separately for each ethnicity, and also for all ethnic groups combined. Tables 1 and 2 depict

the expected values or adjusted means for 1981 Reading Total and Math Total grade equivalent scores, respectively, for students having the same 1980 scores. The adjusted means are shown separately for each ethnicity and reassignment status, at each grade level and subtest.

For both Reading Total and Math Total grade equivalent scores, there were differences among the different ethnic groups at all grade levels ($p < .001$ in each case). White students had higher 1981 reading and math scores then did Hispanic students having the same 1980 pretest scores. In turn, Hispanic students generally had higher 1981 scores than did black students having the same 1980 scores.

In addition to ethnicity, reassignment status and the interaction of reassignment status with ethnicity were significant at certain grade levels and subtests.

At grades 2, 3, 4, 7, and 8 reassigned minority students had significantly lower 1981 scores in both reading and math than their nonreassigned peers having the same 1980 scores. Thus, although all groups of students showed gains in their grade equivalent scores, nonreassigned minority students gained approximately one additional month of instruction at these grade levels and subtest areas.

In general, at all grade levels, reassigned minority students did not gain as much in achievement as their nonreassigned peers, although the magnitude of the difference was not always as large as at grades 2-4 and 7-8. In comparison, at the third-grade level in reading and math and at the seventh and eighth-grade levels in reading, reassigned white students gained less than their nonreassigned peers. In all other areas and grade levels, white reassigned students gained more than their nonreassigned peers on the ITBS.

These results were obtained using all nonreassigned and reassigned students in grades 2-8. However, the patterns for adjusted means were the same when analyses were replaced using only students in paired schools.

## Discussion

There was no evidence that the implementation of court-ordered desegregation had an immediate positive effect on minority student achievement, since gradual improvements had been seen in minority achievement in previous years.

In general, these results indicate that minority students who were reassigned did not gain as much in achievement as their nonreassigned peers at the elementary and junior high levels. White students who were reassigned gained more than their nonreassigned peers at the elementary level in both reading and math, with the expection of grade 3 and junior high reading. In addition, white students gained more than minority students having the same 1980 pretest scores. This was true for both reading and math at all grade levels on the ITBS.

While statistically significant differences between nonreassigned and reassigned students are not found at every grade level or subtest, the trends are prevalent enough to warrant additional examination. First, it appears that differences are more apparent at earlier grades: either a main effect for reassignment status, or an interaction between reassignment status and ethnicity was found in both Reading and Math for grades 2, 3, and 4. The only other significant differences due to reassignment status were noted in Reading at grades 7 and 8. Second, the effect of being reassigned was generally negative for minority students, while the effect for white students was generally positive at

elementary grades and somewhat mixed at the junior high level. Finally, since the entire population of students in the District was used in the analyses, the lack of significant effects at some grade levels may be due to the variability in the data; the consistent direction of the findings is still important. Statistical significance is more relevant to the generalizability issue than to the active trends in Austin's schools.

It may be too early to see any positive effects of desegregation after only a single year. However, since white reassigned students did not show relative losses in achievement, some explanation for the effect of being reassigned on minority students is needed.

Some previous studies can help interpret these findings. Howell (1981) reported that black elementary students who walked to their neighborhood school had greater achievement gains than their peers who were bused to a formerly predominantly white school. In addition, white students bused to the black neighborhood school had greater achievment gains than white students remaining in the white neighborhood schools. Therefore, transporation time did not appear to account for these results for either ethnic group. Howell's findings are comparable to those for Austin's reassigned white students at grades 2 and 4 in Reading, and at grade 4 in Math.

Recall that Frelich and Anderson (1981) reported that black elementary students who were moved from predominantly black classrooms (95 percent or more black) to majority black classrooms (50 percent to 95 percent black) benefited in terms of achievement. However, black students who were moved into majority white classrooms suffered in terms of achievement gains. The Austin Independent School District desegre-

gation plan attempted to balance each school according to the percentage of each group in the school district as a whole (55 percent white). It was inevitable that a substantial number of minority students were placed in predominantly white classrooms as a result, especially when bused to neighborhoods that were predominantly white. The percentage of white students who actually enrolled in formerly minority schools was lower, due to a "white flight" pattern. Austin schools lost 2,000 white students that year, predominantly at the lower grade levels. Thus, a possible explanation for the present findings is that the lower percentage of white students that occurred at early grade levels in formerly minority schools was more beneficial to the achievement of minority students in those schools. The study by Mason (1980) also confirms this interpretation.

It seems possible that an explanation of "culture shock" would have produced similar results for both whites and minorities. That is, teachers in schools receiving the minority students were not prepared to deal with their educational needs. However, a large number of teachers were reassigned with their students to new schools, which reduces the viability of this potential explanation.

The findings of the present study and those of other researchers may have policy implications for the District, in the event that any changes in the desegregation plan are considered. The problem created for minority students when they are reassigned or when they are placed in predominantly white classrooms may indicate that massive busing of either white or minority students may not be the most efficient way to enhance minority achievement. It is possible that a more limited, small-scale plan might actually prove more effective and less costly.

Finally, it is important to remember that there was no control group in this study: we do not know what achievement levels would have been without desegregation. It is possible that achievement of minority students was higher than it would have been without desegregation, even for reassigned students. However, at best, reassigned minority students did not benefit as much as students who were not reassigned.

## Reference Notes


1. Frelich, A., & Anderson, B. Does changing school environments change the academic performance of minority students? Paper presented to the American Educational Research Association, Los Angeles, April, 1981.

2. Howell, J. F. Walking or riding: Does it make a difference in Black student achievement? Paper presented to the American Educational Research Association, Los Angeles, 1981.

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# IOWA TESTS OF BASIC SKILLS

## READING TOTAL

### (WHITE)

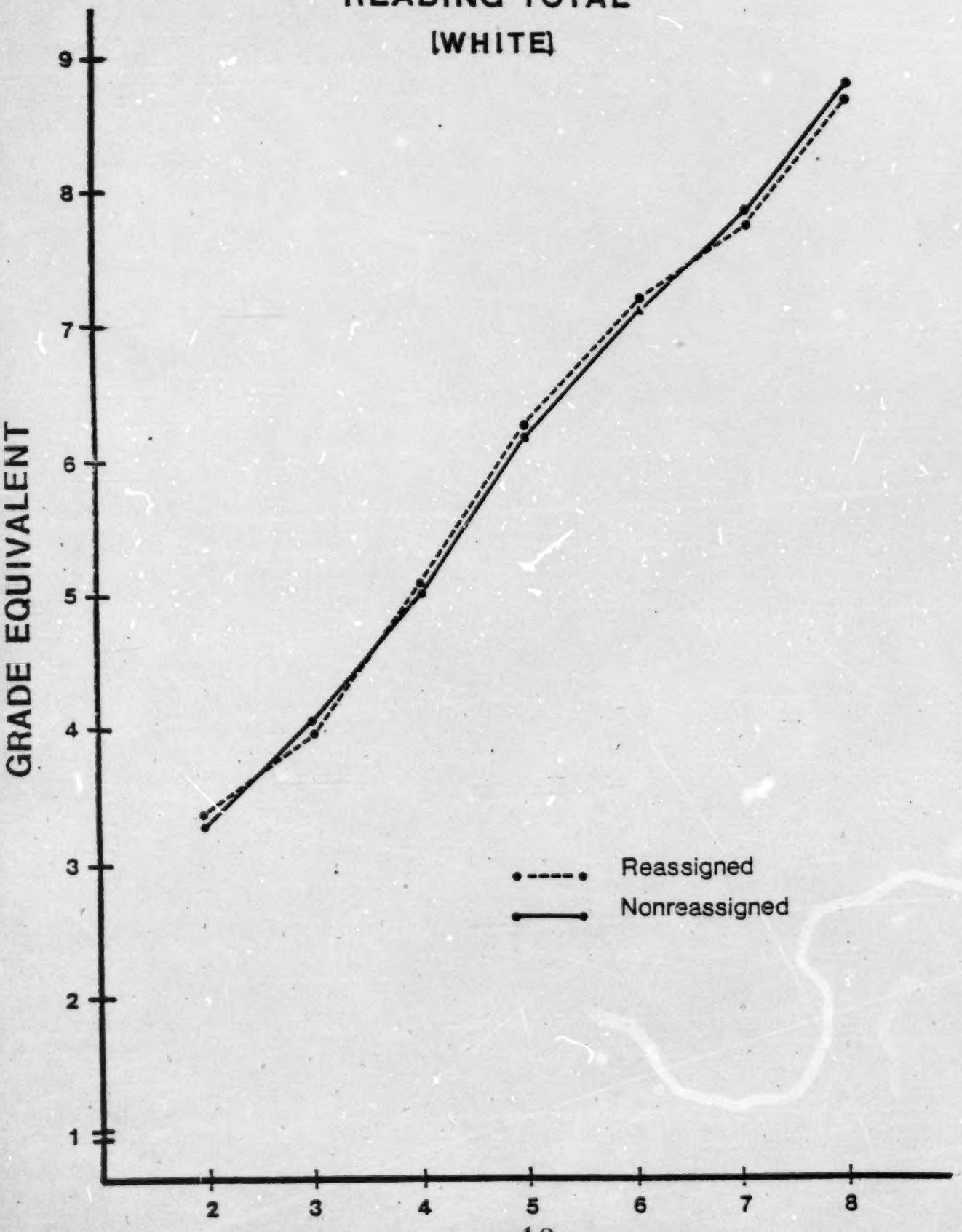


FIGURE 1

# IOWA TESTS OF BASIC SKILLS

## READING TOTAL

### (BLACK)

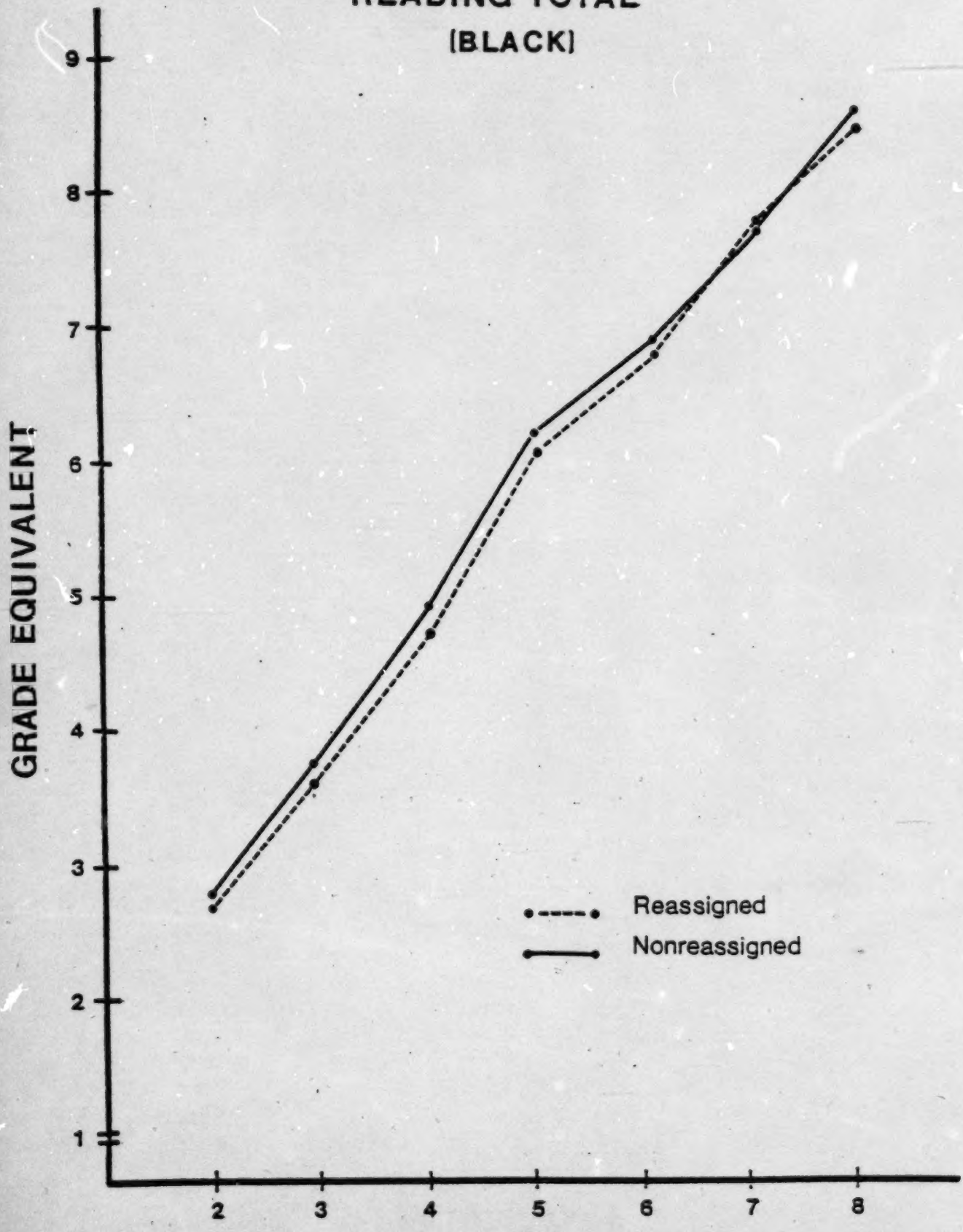


FIGURE 2

# IOWA TESTS OF BASIC SKILLS

## READING TOTAL

### (HISPANIC)

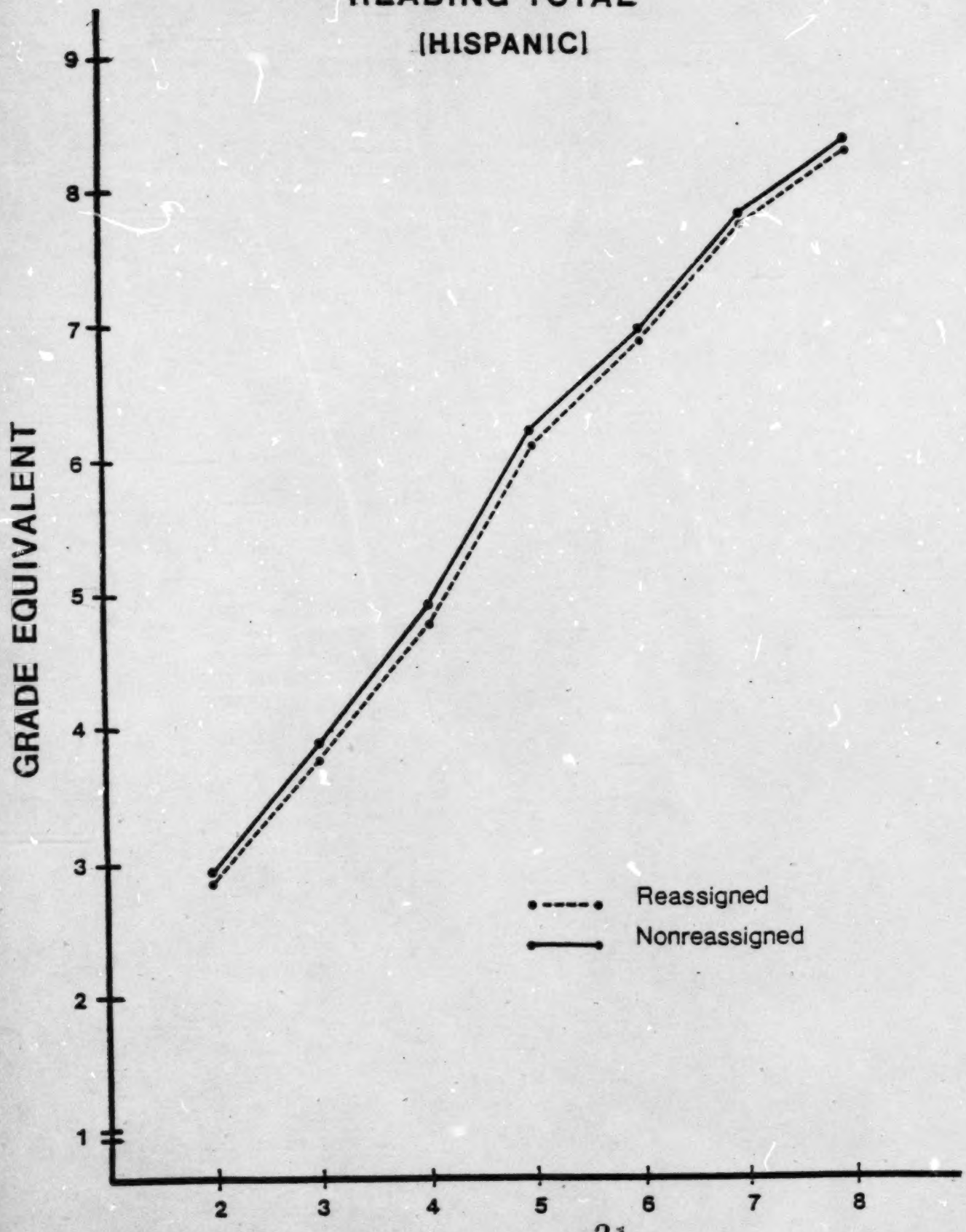


FIGURE 3

# IOWA TESTS OF BASIC SKILLS

## MATH TOTAL

(WHITE)

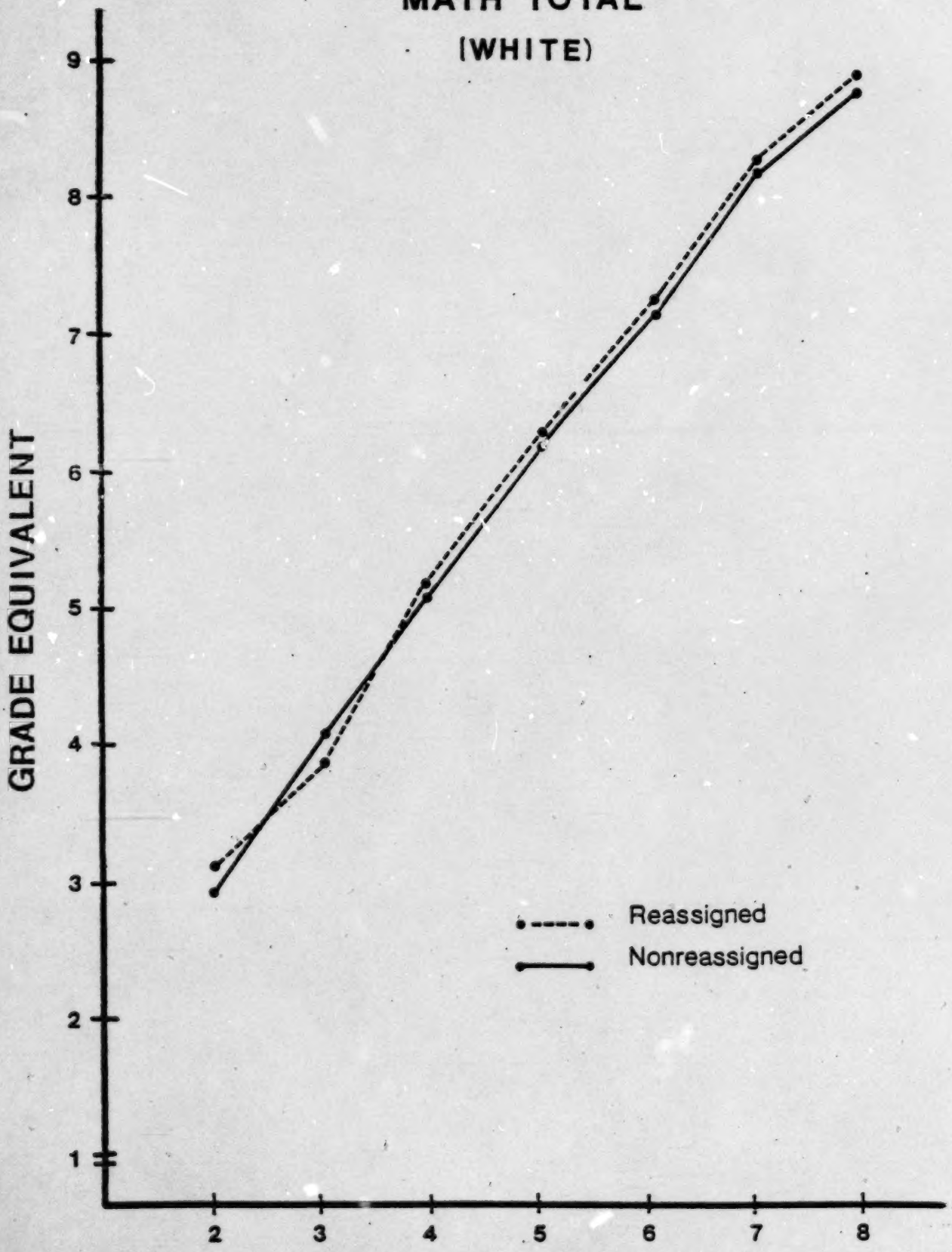


FIGURE 4

# IOWA TESTS OF BASIC SKILLS

## MATH TOTAL

[BLACK]

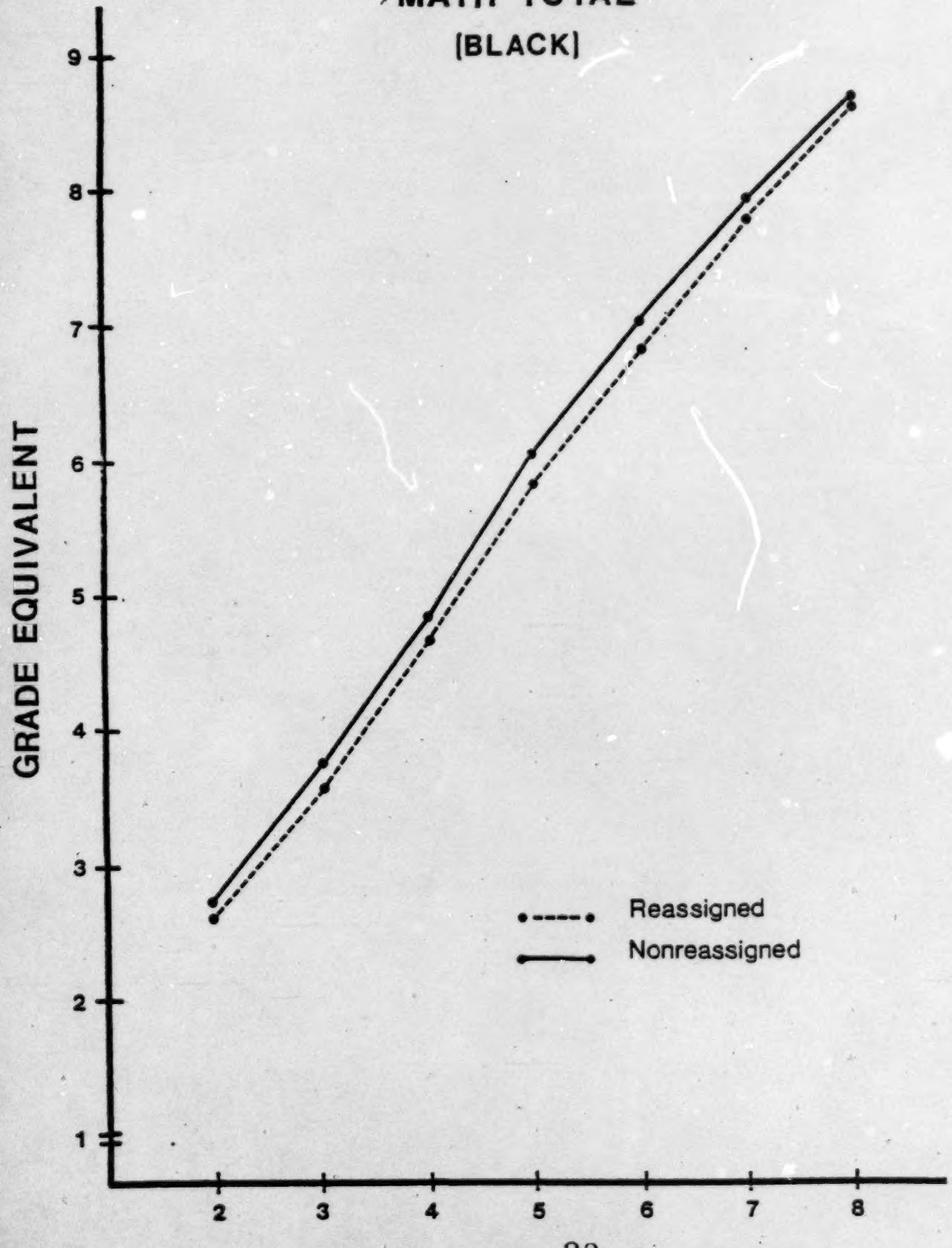


FIGURE 5

# IOWA TESTS OF BASIC SKILLS

## MATH TOTAL

### [HISPANIC]

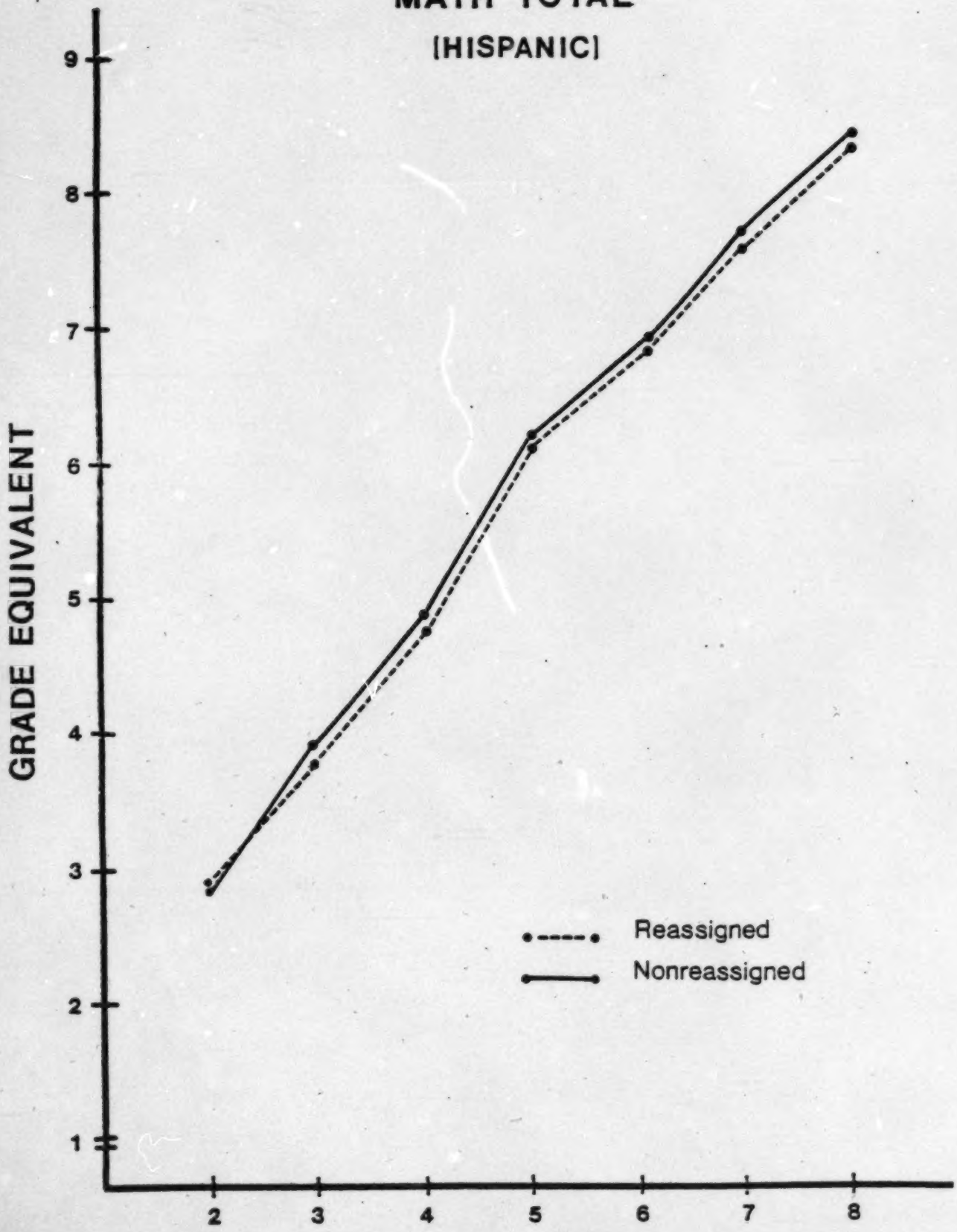


FIGURE 6

# IOWA TESTS OF BASIC SKILLS

## READING TOTAL

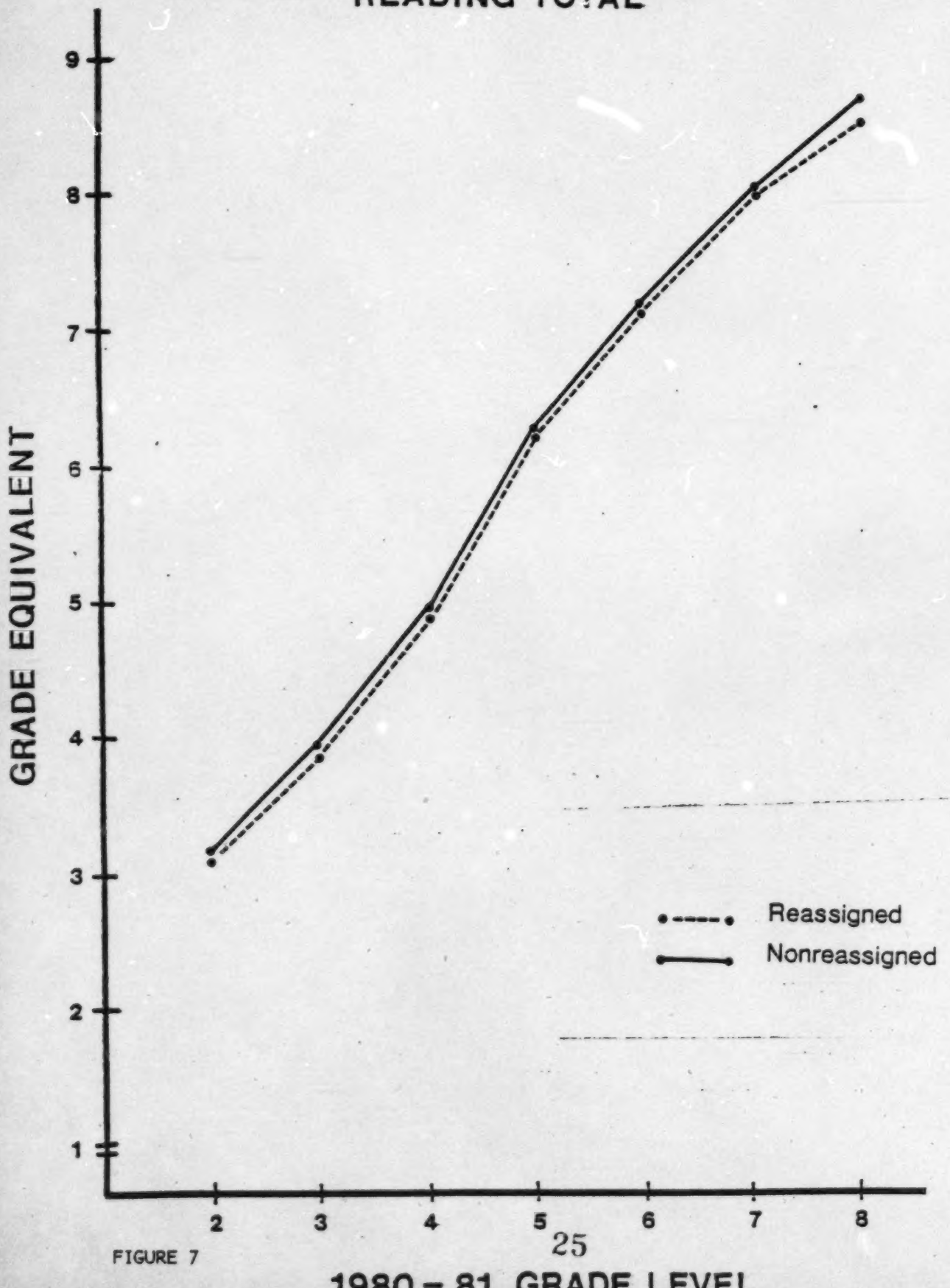


FIGURE 7

# IOWA TESTS OF BASIC SKILLS

## MATH TOTAL

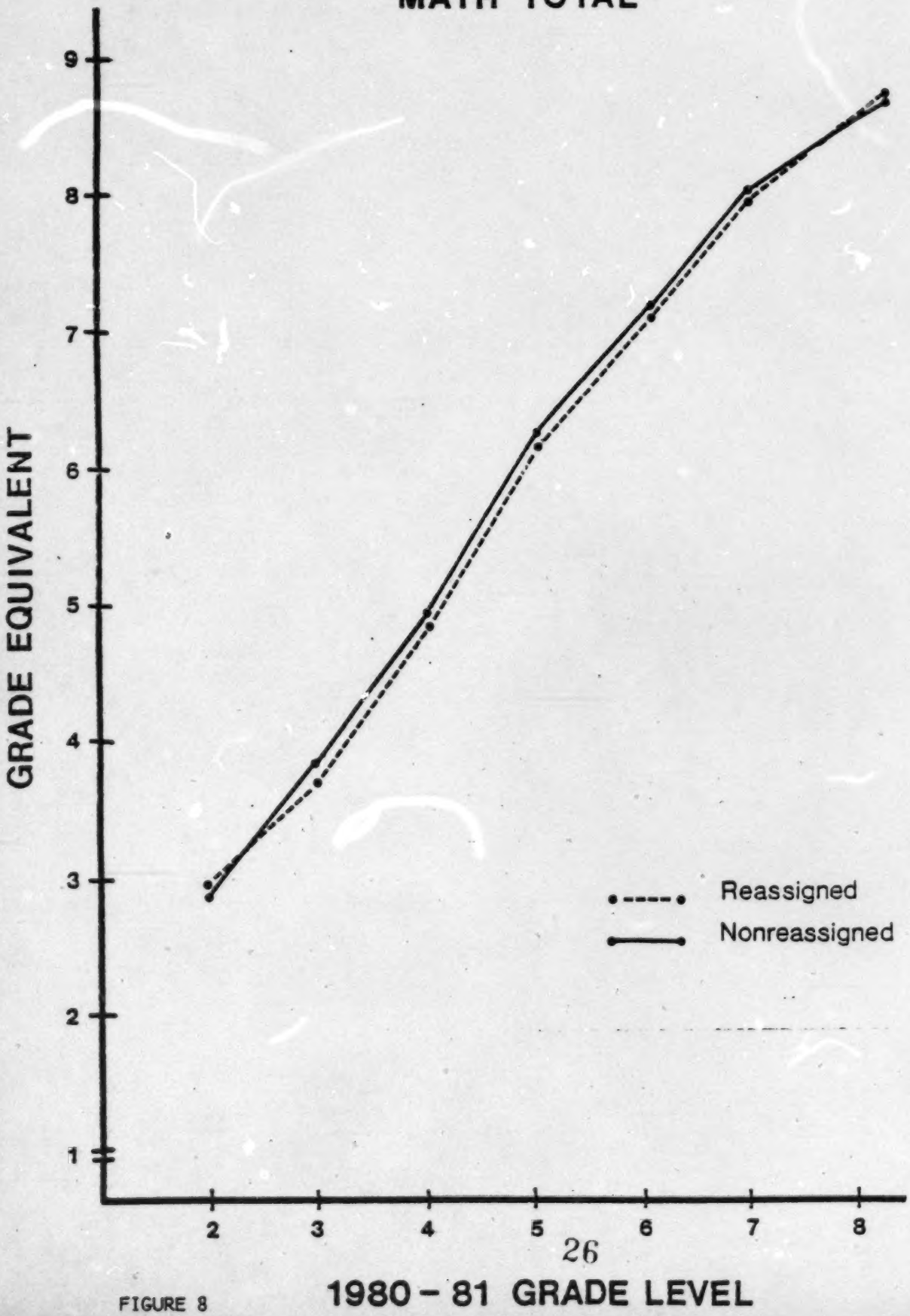


FIGURE 8

Table 1
Expected Values for 1981 ITBS
Reading Total Grade Equivalent Scores

| Grade | White | | Black | | Hispanic | |
|---|---|---|---|---|---|---|
| | Reassigned | Non-Reassigned | Reassigned | Non-Reassigned | Reassigned | Non-Reassigned |
| 2 | 3.345 (287) | 3.258 (1019) | 2.704 (137) | 2.812 (395) | 2.944 (237) | 2.979 (573) |
| 3 | 3.999 (305) | 4.057 (1079) | 3.626 (129) | 3.785 (401) | 3.817 (267) | 3.918 (587) |
| 4 | 5.189 (415) | 5.125 (1248) | 4.782 (187) | 4.949 (357) | 4.839 (299) | 4.961 (546) |
| 5 | 6.360 (558) | 6.346 (1131) | 6.083 (232) | 6.119 (231) | 6.078 (261) | 6.154 (480) |
| 6 | 7.226 (528) | 7.160 (1120) | 6.866 (232) | 6.970 (224) | 6.938 (280) | 6.978 (445) |
| 7 | 7.894 (285) | 7.979 (1433) | 7.791 (223) | 7.785 (260) | 7.759 (200) | 7.769 (571) |
| 8 | 8.773 (319) | 8.837 (1544) | 8.359 (222) | 8.559 (270) | 8.407 (215) | 8.485 (538) |

(cell n's in parentheses)

Table 2
Expected Values for 1981 ITBS
Math Total Grade Equivalent Scores

| | White | | Black | | Hispanic | |
|---|---|---|---|---|---|---|
| Grade | Reassigned | Non-Reassigned | Reassigned | Non-Reassigned | Reassigned | Non-Reassigned |
| 2 | 3.035 (286) | 2.971 (1002) | 2.684 (138) | 2.773 (395) | 2.868 (239) | 2.848 (579) |
| 3 | 3.984 (303) | 4.016 (1079) | 3.533 (128) | 3.767 (400) | 3.698 (275) | 3.843 (583) |
| 4 | 5.227 (417) | 5.252 (1235) | 4.894 (185) | 4.864 (358) | 4.895 (299) | 4.994 (546) |
| 5 | 6.262 (560) | 6.232 (1131) | 5.934 (231) | 6.046 (230) | 5.980 (259) | 6.029 (475) |
| 6 | 7.264 (527) | 7.226 (1118) | 6.902 (231) | 7.004 (225) | 7.015 (277) | 7.066 (441) |
| 7 | 8.048 (282) | 8.022 (1418) | 7.803 (216) | 7.919 (264) | 7.725 (196) | 7.915 (571) |
| 8 | 8.985 (316) | 8.811 (1534) | 8.603 (219) | 8.618 (269) | 8.683 (215) | 8.628 (558) |

(cell n's in parentheses)